JAN 21 1974

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DEPARTMENT OF MICROBIOLOGY

January 16, 1974

Dr. Joshua Lederberg
Department of Genetics
School of Medicine
Stanford University Medical Center
Stanford, California 94305

Dear Doctor Lederberg:

Many thanks for your reprint and comments on the possible relationship between Rickettsiae and Proteus strains.

At long last, advances in technical procedures for the study of rickettsiae - e.g., the plaque technique, labeling DNA, extraction methods, etc. - have begun to set the stage for modern genetic studies with these organisms. The prospects are rather exciting. We even think we can liberate rickettsial DNA within intact host cells for possible application to attempts at transformation. Hybridization studies are certainly technically feasible now. We hope that we will have the opportunity to get into this area and are trying to develop a series of selective systems.

Unfortunately, I have the impression that the term "Rickettsia" as applied today is a bit misleading since I believe the typhus, scrub typhus and Q fever agents are in reality organisms of very different origin which have acquired certain superficial similarities through a process of convergent evolution. Since cross-reactivity with various "Proteus" antigens appears rather widely distributed among this heterogeneous group as well as relapsing fever spirochetes and possibly leptospires, one wonders if it is reasonable to presume that there has been genetic interaction between Proteus strains and all of these others. However, as you suggest, hybridization studies might be illuminating.

Sincerely,

Charles L. Wisseman, Jr., M. D.
Professor and Head

CLW:eph

encl.

WISSEMAN, C.L.